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IS : 10235 (Part I) - 1982

Indian Standard

GLOSSARY OF TERMS

**PART I GENERAL MEDICAL TERMS FOR
SURGICAL IMPLANTS**

UDC 001.4 : 615.465 : 616.71.089.843



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INDIAN STANDARDS INSTITUTION
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NEW DELHI 110002

Indian Standard

GLOSSARY OF TERMS

PART I GENERAL MEDICAL TERMS FOR SURGICAL IMPLANTS

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Indian Standard

GLOSSARY OF TERMS

PART I GENERAL MEDICAL TERMS FOR SURGICAL IMPLANTS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 17 May 1982, after the draft finalized by the Orthopaedic Instruments and Accessories Sectional Committee had been approved by the Consumer Products and Medical Instruments Division Council.

0.2 The definition of an item is very important as it provides information on its technical aspects. Uniformity in definition will also eliminate different interpretations and disputes.

0.3 This Indian Standard is based on ISO/DP 6017/I-2 'Implants for Surgery — Terminology Part I — General Medical Terms', issued by the International Organization for Standardization.

1. SCOPE

1.1 This standard specifies definitions relating to general medical terms used in biology, medicine and engineering relevant to surgical implants.

2. TERMINOLOGY

2.1 Anatomy and Physiology

<i>Term</i>	<i>Definition</i>
Anatomy	Study of structure of the body.
Physiology	Study of function of the body.
Morphology	Study of external structure or form of living organisms.
Anatomical position	Conventional position of human subject in topographical descriptions: standing erect, eye facing forward on tips of toes with palms of hands facing forwards (<i>see</i> Fig. 1).
Median plane	Longitudinal anteroposterior plane dividing the body into apparently similar halves (<i>see</i> Fig. 2).

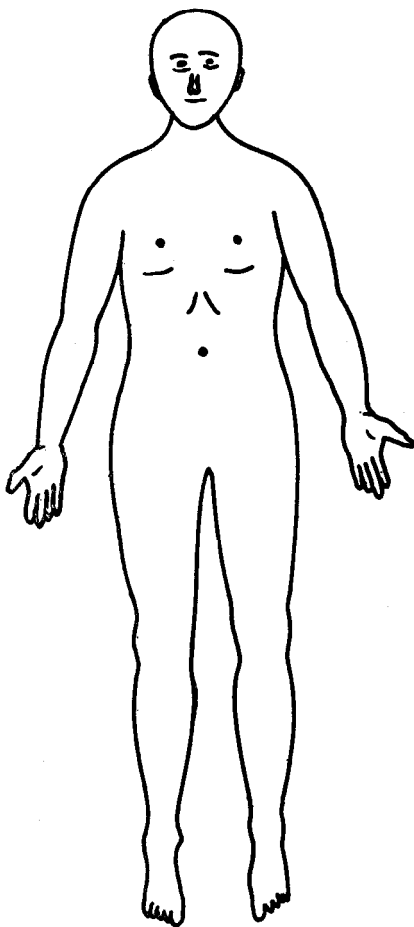


FIG. 1 ANATOMICAL POSITION

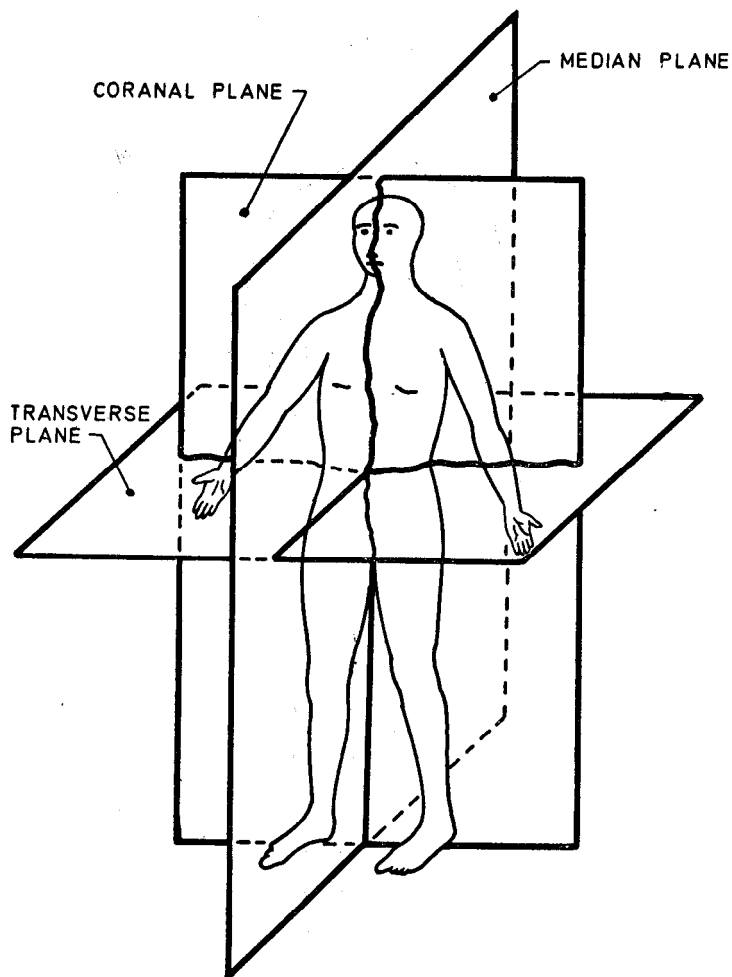


FIG. 2 ANATOMICAL PLANES

<i>Term</i>	<i>Definition</i>
Sagittal plane	Any longitudinal anteroposterior plane of the human body parallel to or coincident with median plane.
Coronal plane FRONTAL PLANE	Any longitudinal plane of the human body normal to the median plane (contrast sagittal) (<i>see</i> Fig. 2) (distinguish from coronary).
Transverse plane	Any plane at right angles to sagittal and coronal planes (<i>see</i> Fig. 2).
Anterior	Front of body or limbs (anterior to — in front of) (contrast posterior).
Ventral	Towards the front alternative to anterior.
Posterior	Back of body or limbs (posterior to behind) (contrast anterior).
Dorsal	In man, unnecessary alternative to posterior (except in foot where it is alternative to anterior with foot in the anatomical position). Also used in relation to thoracic spine (old terminology dorsal spine).
Volar	Relating to palm of hand or sole of foot (<i>see</i> palmar and volar in Part 3 of this standard).
Medial	Towards median plane of body (contrast lateral).
Lateral	Away from median plane of body (contrast medial).
External SUPERFICIAL	Towards exterior of body (external was formerly used also for lateral).
Internal DEEP	Towards interior of body (internal was formerly used also for medial).
Cephalic	Towards head (equivalent to nautical ' forward ').
Caudal	Towards tail (equivalent to nautical ' aft ').
Proximal	Nearer to the body or origin, for example root of limb (contrast distal).
<p>NOTE — The terms proximal and distal should be confined to anatomical use and their use in relation to equipment is deprecated.</p>	
Distal	Away from the body or origin, for example free end of limb (contrast proximal).
Superior UPPER	Above or towards cephalic end of body (contrast inferior).
Inferior	Below or towards caudal end of body (contrast superior).

<i>Term</i>	<i>Definition</i>
Head	That part of body above neck including the cranium (which encloses the brain) and the face.
Face	Consists of forehead, eyes, nose, cheeks, mouth, jaws and ears.
Scalp	Soft tissues overlying cranium, stretching from forehead to junction of head and neck.
Neck	Lies between head and thorax.
Trunk	Body excluding head, neck and limbs.
Thorax CHEST	(<i>Adj.</i> thoracic) Upper half of trunk between neck and diaphragm based on the 12 thoracic vertebrae. Walls are supported by 12 pairs of ribs and sternum. The whole enclose the lungs and mediastinum.
Abdomen	(<i>Adj.</i> abdominal) Part of body between diaphragm and pelvis. Cavity within abdomen, lined by peritoneum.
Inguinal region GROIN	Junctional region between lower abdomen and thigh anteriorly.
Lumbar region	Area over lumbar vertebrae. This is the central area of lower part of back between ribs and pelvis.
Loin	Area at back of body lateral to lumbar region kidneys lie deep to skin and muscles of loin.
Pelvis	(<i>Adj.</i> pelvic) Area of body overlying the lower limb girdle. Also used to describe bones of lower limb girdle. Cavity within pelvis continuous with abdominal cavity containing principally urinary bladder, female reproductive organs and rectum.
Perineum	Area between upper thighs including external genitalia and anus (back passage).
Buttocks or GLUTEAL REGION	Convex fleshy parts, right and left, posterior to pelvis and hips essentially comprising gluteal muscles.
Upper limb or UPPER EXTREMITY	Arm, including shoulder with forearm and hand <i>but</i> , anatomically, arm is confined to part between shoulder and elbow.
Lower limb or LOWER EXTREMITY	Thigh including hip with leg and foot; <i>but</i> , anatomically, the term leg is confined to part between knee and ankle.

<i>Term</i>	<i>Definition</i>
Body water	Most lies within cells making up the body (85 percent) — called intracellular water. Remainder (15 percent is extracellular water mostly lying between cells but some (5 percent of total) lies within blood vessels (blood plasma).
Electrolyte	Solution containing ions. Within the body itself, containing mostly sodium, potassium, chloride, bicarbonate and phosphate.
Haemoglobin	Protein containing iron in red blood cells. Responsible for carriage of oxygen in blood to tissues and gives rise to red colour of blood.
Myoglobin	Protein containing iron similar to haemoglobin confined to muscle fibres.
Cardiovascular system	Consists of heart and blood vessels. The system is filled with blood. Blood is pumped through blood vessels by the heart.
Circulation	Movement of blood within the cardiovascular system.
Neuromuscular system	Composed of central nervous system, peripheral nervous system and muscles.
Locomotion	Progressive movement of body as a whole as in walking, running, crawling, etc.
Respiratory system	Consists of upper respiratory tract, lower respiratory tract and lungs. Also chest wall and diaphragm and inter-related with cardiovascular system.
Respiration	Act of breathing.
Gastro-intestinal	Consists of the mouth pharynx, oesophagus (gullet), stomach, small gut (ileum and jejunum) and large gut (colon and rectum).
Digestion	Process of converting food into substances which can be absorbed through gut into circulation.
Metabolism	Conversion of absorbed food substances into new tissues or energy or waste products.
Genito-urinary system	Consists of kidneys, ureters, bladder and urethra forming the urinary tract and organs of reproduction.
Endocrine gland	Ductless gland which manufactures hormones.

<i>Term</i>	<i>Definition</i>
Hormone	Substance produced by endocrine gland and transported by the circulatory systems to other tissues and organs, including other endocrine glands.

2.2 Histology and Tissues

Histology	Study of the structures of tissues and organs of the body (microscopic anatomy).
Cell	Basic constituent part of all animals and plants. Consists of cell membrane enclosing protein-rich substance called protoplasm: usually this is part cytoplasm and part nucleus.
Nucleus	Relatively dense part of protoplasm, well demarcated, containing chromosomes.
Cytoplasm	Part of protoplasm, surrounding nucleus containing numerous particles for example mitochondria, centrioles, microsomes.
Chromosome	Bodies present in nuclei of cells. These carry genes which are responsible for transmitting hereditary characteristics.
Mitosis	Usual process by which body cells divide into two during growth or to repair damage to tissue. Each chromosome also divides into two.
Meiosis	Cell division in the later stages of maturation of germ cells in which the chromosome pairs separate. Thus each cell resulting from this cell division has only 22 chromosomes.
Ectoderm	(<i>Adj.</i> ectodermal) Outermost of three primary germ layers of embryo from which epidermis and nerve tissue develop.
Endoderm	(<i>Adj.</i> endodermal) Inner of three germ layers of embryo which gives rise to epithelial lining of respiratory system, alimentary canal and glands opening into it and to some glands with and without ducts.
Mesoderm	(<i>Adj.</i> mesodermal) Middle germ layer of embryo lying between ectoderm and endoderm. From this develops connective tissue and organs.
Mesenchyme	(<i>Adj.</i> mesenchymal) Embryonal connective tissue derived from mesoderm.

<i>Term</i>	<i>Definition</i>
Epithelium	(<i>Adj.</i> epithelial) Layers or layer of cells forming outer protective surface of body and lining gut, respiratory passages and glands opening onto skin or into gut and respiratory passages, derived partly from ectoderm and partly from endoderm.
Endothelium	(<i>Adj.</i> endothelial) Layer of cells lining cavity developed from mesoderm (for example blood vessels, peritoneum, pleura).
Mesothelium	(<i>Adj.</i> mesothelial) Layer of cells lining pleural and peritoneal cavities: derived from mesoderm.
Red blood corpuscle (red blood cell) or ERYTHROCYTE	Cell in blood whose primary function is transport of oxygen and carbon dioxide by means of haemoglobin.
Leucocyte LEUKOCYTE	(<i>Adj.</i> leucocytic) White blood cell (or corpuscle). Any one of various colourless amoeboid cells found in normal blood and tissues.
Neutrophil	Specific type of leucocyte.
Eosinophil	Specific type of leucocyte.
Basophil	Specific type of leucocyte.
Lymphocyte	(<i>Adj.</i> lymphocytic) Small white blood cell (or corpuscle). Also found in lymph glands and other aggregations of lymphatic tissue.
Round cell	Cell with spherical shape, notably small lymphocytes that gather round an inflammatory focus.
Macrophage	Large phagocytic cell found in tissues, particularly in area of inflammation.
Phagocyte	(<i>Adj.</i> phagocytic) Cell able to engulf and digest foreign or other particles or cells harmful to body.
Phagocytosis	Phagocytic activity.
Giant cell	Very large cell, whether multinucleate or uninucleate, for example <i>osteoclast</i> .
<i>Osteoclast</i>	Giant cell responsible for removing bone.
Osteoblast	Cell responsible for forming bone.
Platelet	Non-cellular body in blood responsible for initiating the clotting of blood.

<i>Term</i>	<i>Definition</i>
Tissue	Group of similar cells combined with varying amounts of intercellular substance.
Intercellular substance	Non-cellular material lying between cells; usually composed of fibres (mostly collagen) and amorphous ground substance.
Stroma	Supporting structure, usually connective tissue, of organ or other tissue.
Collagen	Major protein of skin, connective tissue and bone. Unique in high content of glycine, proline A and hydroxyproline.
Fibrin	Protein formed from fibrinogen in presence of thrombin during the clotting of blood.
Fibroblast	(<i>Adj.</i> fibroblastic) Parent cell of fibrous tissue.
Fibrocyte	(<i>Adj.</i> fibrocytic) Spindle-shaped cell responsible for producing collagen fibres.
Fibrous tissue	Tissue consisting chiefly of fibres of collagen.
Connective tissue	Derivatives of embryonic mesoderm, comprising bone, cartilage, ligaments, tendons, fascia, aponeurosis, as well as looser supporting tissues within and around definitive organs.
Skin	Outer covering of body consisting of the epithelium (called epidermis) and subjacent dense connective tissue layer (called dermis).
Mucosa	(<i>Adj.</i> mucosal) Moist epithelial layer lining alimentary canal, ducts of glands and respiratory, urinary and genital passages.
Fatty tissue ADIPOSE TISSUE	Loose connective tissue containing cells filled with neutral fat.
Muscle fibre	Single strand of contractile tissue.
Muscle tissue	Aggregation of muscle fibres (lean part of meat).
Skeletal muscle VOLUNTARY MUSCLE SOMATIC MUSCLE	Muscle in body under voluntary control and supplied by peripheral nerves.

<i>Term</i>	<i>Definition</i>
Involuntary muscle	Muscle of heart (cardiac muscle), blood vessels, viscera (visceral muscle)
Tendon	(<i>Adj.</i> tendinous) Dense fibrous cord, popularly called ' leader ' by which muscle may be attached to bone.
Ligament	(<i>Adj.</i> ligamentous) Supporting fibrous band, especially connecting components of joints. Used also less specifically for other bands including disused foetal relics.
Fascia	Sheet of soft tissue, usually fibrous, for example the deep fascia enveloping the body deep to the superficial fascia immediately beneath the skin.
Aponeurosis	Sheet of tissue representing widely spread flattened tendon, for example in front of knee as part of quadriceps extensor apparatus.
Bone tissue	Hard tissue in which fibrous protein (mostly collagen) is mineralised, mainly by complex salts of calcium, mostly long needle-like crystals of hydroxyapatite.
Cancellous (spongy) bone SPONGIOSA	Bone with lattice-like structure of mineralised trabeculae with interstices filled with marrow. With a covering of cortical bone, it fills such bones as those of spine, carpus and tarsus, and also ends of long bones.
Cortical bone	Dense bone forming surface layer of all bones. Shaft of long bone is composed of tube of cortical bone containing marrow in its lumen (medullary canal or cavity).
Membrane bone	Bone which develops in the absence of a cartilaginous precursor, for example bones of the skull.
Cartilage	(<i>Adj.</i> cartilaginous) gristle. A firm non-vascular tissue (normally non-mineralized) forming part of skeleton (contrast bone which is mineralized and contains blood vessels for nutrition).
Hyaline cartilage	Cartilage with homogeneous matrix, for example articular and epiphyseal cartilage (contrast fibrocartilage).
Articular cartilage	Thin layer of hyaline cartilage forming very smooth bearing surface of synovial joint.

<i>Term</i>	<i>Definition</i>
Epiphyseal cartilage	Part of epiphysis adjacent to bone and responsible for growth in length, disappearing when growth ceases.
Fibrocartilage	Cartilage whose matrix contains considerable amount of white fibrous tissue.
Neuron NEURONE	Nerve cell consisting of body containing nucleus and numerous dendrites branching from body of cell. One dendrite greatly elongated to form axon.
Nerve fibre	Axon of nerve cell with enveloping sheaths.
Nerve	Collection of nerve fibres.
Organ	Aggregation of different tissues to form circumscribed entity within body usually with specific function.
Viscus	(<i>Plural</i> viscera) Internal organ related to serous cavity — peritoneal, pleural or pericardial-innervated by autonomic nerves.
Gland	Collection of specialized epithelial tissue with excretory or secretory function.
Capsule	(<i>Adj.</i> capsular) Compressed connective tissue layer surrounding organs and glands.
Cortex	(<i>Adj.</i> cortical) Outer layer of organ as distinguished from inner substance, especially the dense bony tissue (cortical bone) forming surface of bones.
Trabecula	(<i>Adj.</i> trabecular; <i>plural</i> trabeculae) Literally small beam. Constituent of internal supporting framework of organ or tissue. Bone is given rigidity and hardness by mineralization of trabeculae.

2.3 Pathology

Pathology	Study of disease and body tissues.
Disease	Any disturbance from normal anatomy or physiology.
Hypertrophy	Increase in size of tissue or organ in comparison to normal size.
Atrophy	Reduction in size of tissue or organ.
Hyperplasia	Increase in number of cells in tissue or organ.
Hypoplasia	Decreased in cellular content of tissue or organ.

<i>Term</i>	<i>Definition</i>
Metaplasia	Change of cell form within tissue or organ to cell of different type.
Degeneration	Changes occurring in cell or tissue in response to disease insufficient to cause necrosis.
Necrosis	(<i>Adj.</i> necrotic) Death of tissue.
Oedema	Swelling of tissues due mostly to increase of fluid between cells (interstitial or extracellular fluid).
Tissue reaction	Response of tissue to stimulus which may be chemical or physical.
Inflammation	Reactive state of hyperaemia and exudation from blood vessels, with consequent redness, heat, swelling and pain, which tissue enters in response to physical or chemical injury or bacterial invasion.
-osis	In pathology, suffix usually used to denote a non-infectious condition.
-itis	In pathology, suffix denoting disease, notably inflammatory disease.
-oma	(<i>Plural</i> omata) Suffix denoting swelling, for example haematoma or in special sense of neoplasm; often preceded by presumed source, for example pibroma derived from cells of fibrous tissue, osteoma from bone, chondroma from cartilage.
Hyperaemia	Increased blood flow to a tissue or organ often due to inflammation.
Exudate	Fluid extravasated into cavity or tissues.
Transudate	Fluid that has passed through membrane.
Infection	Arrival or presence of potentially pathogenic organisms in tissues of appropriate host.
Pus	Product of inflammation made up of living or dead cells and liquid with debris and often bacteria.
Purulent	(<i>Adj.</i>) Pertaining to pus.
Pyogenic	(<i>Adj.</i>) Pus forming.
Abscess	Collection of pus within tissues or organ.
Carbuncle	Infective lesion of subcutaneous tissues characterized by pus discharging from multiple sinuses.

<i>Term</i>	<i>Definition</i>
Granulation	Development of connective tissue and blood vessels at the site of damaged tissue.
Repair	Restoration of injured part or tissue.
Foreign body	Any extraneous body introduced into tissues (distinguished from loose body).
Loose body	Movable body derived from normal body tissues, for example of cartilage or bone, within a joint, bursa or synovial sheath.
Pannus	Outgrowth across a surface, such as cornea, the surface of a joint or (in heart surgery) at the junction of endocardium and prosthesis.
Cyst	Sac containing liquid or pultaceous material.
Tumour	(USA, tumor) Strictly swelling, but commonly used to refer to neoplasm.
Neoplasm or NEW GROWTH	(<i>Adj.</i> neoplastic) Abnormality arising from purposeless multiplication of cell independent of normal laws of growth.
Benign neoplasm	Neoplasm that grows by displacing surrounding tissues rather than infiltrating them; that subsequently does not usually tend to recur after removal; and that does not disseminate to other parts of body.
Papilloma	Benign tumour arising from epithelium.
Malignant neoplasm	Autonomous growth that spreads locally by infiltration; that consequently tends to recur <i>in situ</i> after attempted removal, and that may disseminate to distant parts through blood stream, through lymphatic system or, more rarely, through a body cavity, thus forming distant deposits or metastases (singular metastasis). Metastases are called secondary neoplasms in distinction from primary neoplasm from which they have seeded.
Carcinoma	Malignant neoplasm derived from epithelial cells including those of secreting glands, for example gastric (stomach) carcinoma, vesical (bladder) carcinoma, mammary (breast) carcinoma, (Misuse of the term 'epithelioma' for squamous cell carcinoma is strongly deprecated).

<i>Term</i>	<i>Definition</i>
Sarcoma	Malignant neoplasm derived from connective tissue (or its developmental precursor), for example fibrosarcoma, osteosarcoma, chondrosarcoma.
Cancer	Properly, this refers to carcinoma; in popular parlance used for any kind of malignant neoplasm, including sarcoma as well as carcinoma.
Metastasis	(<i>Adj.</i> metastatic) Seeding of disease (notably, but not exclusively, malignant growth) in distant part or parts and its establishment to form secondary deposits. Term 'metastatic' may be applied either to process or to deposit itself.
Thrombus	(<i>Adj.</i> Thrombotic) Intravascular blood clot. In cardiovascular surgery it may develop on surface of prosthetic valve.
Coagulation	Process of clotting of blood.
Embolus	Body which may be gaseous, liquid or solid and which lodges to occlude blood vessels. Embolus may be derived from within or without body.
Haemolysis	Breakdown of red blood cells.
Haemorrhage	(<i>Adj.</i> haemorrhagic) Loss of blood due to rupture or injury of blood vessels.
Haematome	Collection of blood in tissues due to haemorrhage.
Anaemia	Reduction of haemoglobin circulating within blood system.
Shock	Condition characterized by low blood pressure, tachycardia (raised pulse rate) and poor circulation of blood in the peripheral vessels.
Ischaemia	(<i>Adj.</i> ischaemic) Condition in which blood supply to tissue or organ is impaired.
Infarction	Rapid interruption of blood supply, for example if artery is blocked by embolus or thrombus, resulting in death of tissue or organ.
Infarct	Part of tissue or organ killed by infarction.
Gangrene	Death of tissues from any cause, infarction, physical causes (for example frost bite), chemical causes (for example Lysol), infection (for example gas gangrene).

<i>Term</i>	<i>Definition</i>
Sensitization (biological)	Condition in which response to a second or later stimuli is greater than that to the original stimulus.
Allergy	Condition of unusual or exaggerated susceptibility to a substance which is harmless to most subjects.
Antigen	Substance which stimulates the production of anti-body or antibodies within a subject.
Antibody	Specific substance produced in a subject and evoked by antigen.
Immunity	State in which a subject has protection from: <ul style="list-style-type: none"> a) invasion by a particular micro-organism <i>or</i> b) action of particular toxins. Immunity may be inborn or acquired.
Immune response	Mutual reaction of antigen and antibody, either local or general. Response may cause symptoms and clinical signs.
Auto-immunity	State in which subject produces antibody to antigen derived from that subject rather than from outside.
Auto-antibody	Antibody produced by a subject in response to antigen derived from its own tissue or cells.
Toxin	Substance usually produced by bacteria which has deleterious effects of tissues either locally or generally (for example to cause fever, fall in blood pressure).
Anti-toxin	Substance, usually protein, injected to counteract effects on toxins.
Toxaemia	(<i>Adj.</i> toxaemic, toxic alternative term.) Condition in which toxin is circulating in blood stream.
Fever	Condition in which body temperature is raised above normal.
Hyperthermia	Condition in which body temperature is raised above 39°C.
Hypothermia	Condition in which body temperature is below 35°C.
Laceration	Cutting injury of skin due to sharp edge, for example by knife or glass.
Abrasion	Superficial scuffing injury of skin or other epithelial layer.

<i>Term</i>	<i>Definition</i>
Ulcer	Eroded area of skin or other epithelial surface with evidence of inflammation.
Fistula	Abnormal communication between organs or between organ and body surface.
Sinus	(Pathological) Infected track communicating with skin or lumen of hollow organ.
Strangulation	Compression of tissues by external force causing interference with blood flow or other vital function, for example intestinal obstruction.
Stricture STENOSIS	(<i>Adj.</i> stenotic) Narrowing of duct or passage due to failure of development damage or disease.

2.4 Microbiology

Microbiology	Study or micro-organisms.
Micro-organism	Living creature that is microscopic or ultramicroscopic, often unicellular.
Bacillus	(<i>Adj.</i> bacillary) (Literally little stick) Rod shaped bacterium.
Bacterium	(<i>Plural</i> bacteria, <i>Adj.</i> bacterial) Small micro-organism with relatively simple and primitive form of cellular organization. Generally uni-cellular, but cells may grow attached to one another in clusters, chains, rods, filaments.
Mycobacterium	Slender gram-positive, acid-fast bacillus that occasionally undergoes branching (for example mycobacterium tuberculosis and mycobacterium leprae).
Coccus	(<i>Plural</i> cocci, <i>Adj.</i> coccal) Spherical or ovoid bacterium.
Staphylococcus	Coccus that multiplies to form clumps.
Streptococcus	Coccus that multiplies in linear manner to form chains.
Coliform bacillus	Bacillus that resembles escherichia coli which commonly inhabits gut. Authorities differ, however, on the closeness of resemblance required for use of this term.

<i>Term</i>	<i>Definition</i>
Clostridium	(<i>Plural</i> clostridia, <i>Adj.</i> clostridial) Genus of gram-positive spore-bearing bacilli : some species produce diseases, including gas gangrene, tetanus and botulism.
Spirochaete	Spiral shaped bacterium of order spirochaetales, mobile in spite of having no flagella; for example treponema pallidum which causes syphilis.
Flagellum	(<i>Plural</i> flagella) Whip like appendage of organism conferring mobility.
Vibrio	Comma-shaped bacterium — curved bacillus.
Virus	Ultramicroscopic organism (for example smaller than can be resolved by light microscope, under 0.2 μ m in diameter) and filterable through bacteria-stopping filters.
Virion	Virus particle, for example virus unit corresponding to single cell of larger organisms
Elementary bodies (micro)	Usually, single virus particles of some of the larger viruses, visible by light microscopy after appropriate staining.
Inclusion bodies (micro)	Aggregates of virus particles visible by light microscopy, after appropriate staining, within nuclei or cytoplasm of infected cells.
Antigen B	Hepatitis B various which comprises a hepatitis B surface antigen and core antigen (this term is now considered obsolete).
Aerobe	(<i>Adj.</i> aerobic) Organism which can live and multiply in presence of free oxygen.
Strict aerobe	Aerobe that grows only in the presence of free oxygen.
Facultative anaerobe	Anaerobe that grows both in the presence of and in the absence of oxygen.
Micro-aerophile	Organism which grows best in sub-atmospheric concentrations of oxygen.
Spore (bacterial)	Highly resistant resting form of bacterium which can survive in a dormant phase through long periods of adverse environmental conditions.
Endospore	Thick-walled spore formed within the bacterial cell.

<i>Term</i>	<i>Definition</i>
Filament (bacterial)	Applied to morphology of bacteria, refers to a thread-like form, generally unsegmented; if segmented, to be distinguished from chains by the absence of constrictions between the segments.
Gram-negative	Staining red by Gram's method, through losing the primary violet or blue stain during decolorization and taking up the red counter-stain.
Gram-positive	Staining violet or blue by Gram's method, through retaining the primary stain.
In vitro	' In glass ', hence in laboratory apparatus.
In vivo	In a living animal, for example a human being.
Chains	Four or more organisms attached end-to-end.
Colony	Visible mass of micro-organisms resulting in most cases from the multiplication of a single organism or a very small number.
Strain (bacterial)	A culture all members of which are believed to be the progeny of a single organism. (This is not an entirely satisfactory definition, and indeed the variations which inevitably accompany bacterial reproduction make the whole concept of a pure strain fallacious.)
Mutation	Permanent transmissible change in a gene.
Acid-fast	Resistant to decolorization by acid after staining with hot carbol fuchsin, and so retaining a red colour when stained by the Ziehl-Nielsen method for example, <i>Myc. tuberculosis</i> which is characterized by being also alcohol fast (acid-alcohol-fast).
Capsule (bacterial)	Coating, commonly of polysaccharide, on the outer surfaces of the cell walls of some bacteria and fungi.
Lysis (bacterial)	(<i>Adj.</i> lytic.) Dissolution of microbial or other cell.
Symbiotic	(<i>Adj.</i>) Living in a mutually beneficial relationship with the host (cf. commensal, pathogenic).
Commensal	(<i>Noun</i> or <i>Adj.</i>) Deriving nourishment from a host without being either beneficial or harmful to him (cf. pathogenic, symbiotic).

<i>Term</i>	<i>Definition</i>
Saprophytic	(<i>Adj. Noun</i> — saphrophyte.) Living on dead organic matter.
Pathogenic	(<i>Adj.</i>) Producing or capable of producing disease (cf. commensal, symbiotic).
Infection	Arrival or presence of potentially pathogenic organisms in the tissues of an appropriate host.
Inoculation	a) Of man or animals: Introduction of material containing micro-organisms or their products into the tissues, usually for prophylactic purposes in the case of man. b) Of culture media: Application to or introduction into a nutrient medium of material known or suspected of containing living organisms.
Carrier	One who is harbouring but not currently suffering any ill-effects from a pathogenic organism.
Endemic	(<i>Adj.</i>) Pertaining to a disease constantly present in a particular community.
Epidemic	(<i>Noun or adj.</i>) Pertaining to a disease attacking many people in a community at the same time.
Pandemic	(<i>Noun or adj.</i>) Wide spread epidemic.
Septicaemia	Presence and multiplication of pathogenic bacteria in the blood stream, consequent and often severe illness (cf. bacteraemia).
Bacteraemia	Presence of bacteria in the blood stream without any directly resulting illness (cf. septicaemia).
Bacillaemia	Bacteraemia caused by bacilli.
Bacteriuria	Presence of bacteria in freshly voided non-purulent urine.
Bacilluria	Bacteriuria caused by bacilli.
Viraemia	Presence of viruses in the blood stream.
Antimicrobial	Chemical suitable for administration and effective in the treatment of microbial infections.
Antibiotic	(<i>Noun or Adj.</i>) Antimicrobial agent produced by micro-organisms or a related synthetic product.
Pyrogen	Fever-inducing substance; especially a toxic product of micro-organisms which causes a febrile reaction when injected intravenously, for instance in a liquid used as a vehicle for drugs.

*Term**Definition***2.5 Sterilization and Disinfection**

Sterilization	Process intended to destroy or remove all microbial life.
	Methods of sterilization may be classified as follows:
	a) Physical methods :
	1) Heat
	i) Dry heat
	ii) Moist heat
	2) Radiation
	i) Non-ionizing
	ii) Ionizing
	3) Filtration
	b) Chemical methods.
Sterile	Free from all living organisms. In practice, condition of a product which has been subjected to a recognized sterilizing process.
Sterilized	Rendered sterile.
Contamination	Introduction of living organisms or foreign material.
Laminar flow (streamline flow)	Non-turbulent flow of a fluid. In operating rooms, wards, safety cabinets, etc, laminar flow of air is used to minimize airborne contamination or to remove contaminants.
Disposable	Descriptive term referring to an article, often pre-sterilized, which is intended to be used once only, ideally, it should be easily degradable.
Sterilant	Agent used in sterilization which destroys microbial life including bacterial spores and, therefore, is not to be confused with disinfectant.
Sporicide	Sterilant but usually confined to a chemical agent.
Dry heat sterilization	Process of sterilization which implies the use of either flaming, incineration, infrared radiation or hot air.

<i>Term</i>	<i>Definition</i>
Hot air sterilization	Process of dry sterilization in which the killing of the most resistant spores requires a temperature of about 160°C for 60 minutes. The sterilization of oils and powders demands dry heat, since oils can not, and powders usually can not without caking be penetrated by steam. The method is also applicable to instruments, and glassware, including syringes.
Moist heat sterilization	Process which implies the use of either pasteurization, boiling, steam at atmospheric pressure or steam under pressure (autoclaving). Moist heat methods are more effective than dry heat in killing organisms at lower temperatures in a given time and in shorter times at the same temperatures. Only autoclaving fully ensures sterilization and killing of the moist highly resistant spores.
Pasteurization	Method of heat treatment of heat-labile liquids in order to destroy undesirable micro-organisms. Pasteurization of milk is carried out by raising the temperature to 63°C for 30 minutes (the holder process) or to 72°C for 20 seconds (the flash process).
Radiation	<p>Sterilization by means of radiation. Radiation used for sterilizing purposes fall into two groups:</p> <ol style="list-style-type: none"> Non-ionizing or low energy types such as ultra-violet rays and infra-red rays. Ionizing or high energy types such as gamma rays and high-speed electrons.
Low energy radiation sterilization	<ol style="list-style-type: none"> Infra-red radiation sterilization — Process of dry heat sterilization in which the source employed is an electrically heated element; the infra-red rays are directed on to the object to be sterilized and temperatures of 190°C can be obtained. It is a convenient method for sterilizing syringes in large numbers. Ultra-red radiation sterilization — Process of sterilization making use of radiation of wave-length bands between violet and roentgen. The effectiveness of this radiation as a sterilizing agent increases with decrease in wavelength.

<i>Term</i>	<i>Definition</i>
High energy (ionizing) radiation sterilization	Sterilization is achieved by the use of either high-speed electrons from a machine such as a linear accelerator or by gamma rays from an isotope source such as cobalt 60. These methods are used for the sterilization of large amounts of pre-packed disposable items that are unable to withstand heat.
Cold sterilization	Method of sterilization using ionizing radiation in which there is no appreciable increase in temperature.
Bactericide	Chemical agent which, used under defined conditions, is capable of killing bacteria, but not necessarily bacterial spores.
Bacteriostat	Chemical agent capable of preventing the growth of bacteria but not of killing them.
Bacteriostasis	(<i>Adj.</i> bacteriostatic) State in which bacteria are neither growing nor dying. The net result over a prolonged period is therefore death or adaptation and growth. This state can be brought about by a bacteriostat or by physical means.
Fungicide	Chemical agent which, used under defined conditions, is capable of killing fungi, including their spores.
Fungistat	(<i>Adj.</i> fungistatic) Chemical agent capable of preventing the growth of fungus but not of killing them.
Fungistasis	State in which fungi are neither growing nor dying*. This state can be brought about by a fungistat or by physical means.
Virucide	Chemical agent capable of destroying viruses.
Protozoacide	Chemical agent capable of destroying protozoa.
Germ	Obsolete term which has been used to describe pathogenic organisms.
Germicide	Popular term to be avoided describing a substance or procedure capable of killing germs.

*This is a theoretical concept in terms of chemical treatment because the natural spread of resistance in any micro-organism population is such that under any form of adverse treatment the weaker cells will die and the stronger ones survive or even multiply.

<i>Term</i>	<i>Definition</i>
Filtration sterilization	<p>Method of rendering fluids, including bacterial cultures, free from bacteria by passing them through special filters with pores so small that ordinary bacteria are arrested.</p> <p>The types of filter are:</p> <ol style="list-style-type: none"> Earthenware candles. Asbestos and asbestos-paper discs. Cellulose membrane filters.
Disinfection	Destruction of micro-organisms, but not usually bacterial spores; this does not necessarily involve killing all micro-organisms, but reducing them to a level not normally harmful to health. The term is applicable to the treatment of inanimate objects and materials although it is also applied to the treatment of the skin and other body membranes and cavities.
Disinfectant	Agent used in disinfection.
Disinfection by chemical methods	<p>The following so-called sterilizing agents are widely used. Although able to destroy pathogenic micro-organisms, few have any effect on spores:</p> <ol style="list-style-type: none"> Alcohols (ethyl, isopropyl, trichlorobutanol). Aldehydes (formaldehyde, glutaraldehyde). Dyes (aniline, acridine compounds). Halogens (chlorine, iodine). Metallic salts (mercurials, copper, silver). Phenols (carbolic acid, cresols, xylenols, chlorophenols, chloroxylenols, biphenols). Surface active agents (anionic, cationic, non-ionic, ampholytic compounds). Gases (ethylene oxide, formaldehyde).
Antiseptic	<p>(<i>Noun</i>) Chemical agent used in antiseptis.</p> <p>(<i>Adj.</i>) Conductive to antiseptis.</p>

<i>Term</i>	<i>Definition</i>
Antisepsis	Destruction of micro-organisms, but not bacterial spores, on living tissues; this does not necessarily involve killing all micro-organisms, but reducing them to a level not normally harmful to health. Any specificity should be defined. The term is analogous to disinfection with which it is etymologically synonymous. It implies therefore, lethal activity, but it is sometimes used misguidedly in the sense of bacteriostatsis.
Asepsis	Avoidance of infection.
Sanitizer	Disinfectant with the connotation also of cleaning, used mainly in the clothing, food and catering industries.
Sterilizer	Equipment designed to achieve sterilization.
Steam sterilization	Process in which a pressure vessel is used for sterilizing in saturated steam at an approved temperature and time.
Autoclave	Pressure vessel which may be used as a steam sterilizer.

2.6 Surgical Procedures

Operation	(<i>Adj.</i> operative) Surgical procedure for therapeutic or diagnostic purposes.
- tomy	Suffix indicating to cut into.
- ectomy	Suffix indicating excision of tissue or organ.
- ostomy	Suffix indicating an artificial opening connecting hollow organ with skin or with another hollow organ (for example colostomy — opening into skin, tracheostomy — opening into the trachea through front of neck).
- lysis	Suffix indicating freeing of structure from surrounding tissue (for example neurolysis — freeing of nerve).
- plasty	Suffix indicating refashioning of tissues.
- pexy	Suffix indicating surgical fixation of one tissue to another.
- scopy	Suffix indicating visualization of organ or part by means of special instrument (for example bronchoscopy inspection of the interior of the bronchial tree using bronchoscope).

<i>Term</i>	<i>Definition</i>
Endoscopy	A general term embracing any form of inspection of organs or tissues using special instruments.
Aspiration	Removal of fluid by suction through a hollow tube (for example a hollow needle or a catheter).
Paracentesis	Surgical puncture or tapping of cavity within body to remove fluid.
Manipulation (clinical)	(<i>Adj.</i> manipulative) Passive movement of a part, usually joint or joints, but also applied to fracture undergoing reduction (often under anaesthetic to avoid pain and allow relaxation of muscles).
Incision	Deliberate cut to allow access to deeper tissues or act of cutting.
Exposure	Act of revealing organ or tissue to be operated upon by means of dissection and retraction following incision.
Dissection	Separation or division of tissues during anatomical studies or surgical procedures.
Retraction	Act of holding tissues apart manually or with instruments (retractors) to expose deeper organs or tissues.
Exploration (clinical)	Search of part by hollow needle or by operative exposure.
Excision	Act of cutting out.
Resection	Excision of portion of structure or organ.
Biopsy	Removal of tissue for diagnostic examination (usually histological by means of hollow needle or operative exposure.
Ligate	Act of applying ligature (for example to close end of divided artery).
Anastomosis	Act of joining two hollow structures together (for example blood vessels, intestine).
Amputation	Act of cutting off usually applied to extremities, for example digit, limb, penis.

<i>Term</i>	<i>Definition</i>
Wound closure	Act of closing a wound by means of a suitable fastening device or agent, for example sutures, clips, staples.
Primary closure	Closure of an incision at end of an operation or in the case of wounds, closure within about eight hours after injury.
Delayed primary closure	Closure of incision or wound after a delay of not more than 48 hours from the time of operation or injury.
Secondary closure	Closure of incision or wound after an interval of more than 2 days and usually 7 days to 10 days. Usually involves excision of edges of incision or wound before suture.
Suturing	Act of closing gap in tissues by means of sutures.
Wound	Breach of skin or deeper tissues resulting from injury.
Wound toilet	Excision of wound including removal of any foreign bodies or non-viable tissue.
Debridement	(Literally unbridling) Free opening up of wound. Use of word when extended to wound toilet or to excision of rheumatoid material, etc (through confusion with unrelated word debris) is to be deplored.

2.7 Surgical Instruments

Suture	(<i>Noun</i>) Surgical stitch (<i>verb</i>). To stitch together. Also used to indicate material used for stitching.
Ligature	(<i>Noun</i>) Material used to tie around tissues so as to occlude blood vessels or other hollow viscus.
Tourniquet	Device for applying to limbs to interrupt blood flow — low pressure will obstruct only veins but pressure above systolic blood pressure will stop arterial in-flow to limb.
Catheter	Hollow tube usually with rounded tip at one end and open at other end for passage into hollow structure within body and used for many purposes for example drainage of bladder, injection of radio-opaque dyes in cardiac radiology, measurement of pressure.

<i>Term</i>	<i>Definition</i>
Drain	Device used to prevent build-up of fluids in tissues particularly in wound following surgery.
Closed drain	Tube drain connected to a closed system to prevent direct contact between drain and atmosphere.
Suction drainage	Closed drainage in which negative pressure is applied to the drainage tube to facilitate drainage.
Introducer	Solid instrument inserted into flexible catheters and drains to facilitate their insertion.
Probe	A thin blunt ended instrument usually flexible for exploring sinuses and other narrow orifices.
Trocar	Sharp pointed solid rod used in conjunction with cannula to pierce a cavity.
Cannula	Hollow rigid instrument with blunt end used to drain a cavity or allow fluid to be injected into a cavity. Introduced by means of trocar which fits accurately into cannula. Blunt end of cannula allows instrument to remain <i>in situ</i> for long period if necessary.
Clamp	Instrument used to grip tissue or organ usually in relation to occluding hollow viscus or blood vessels.
Scope	Suffix indicating an instrument allowing visualization of a cavity (for example laryngoscope visualization of the larynx, gastroscope — visualization of the stomach).
Speculum	Diagnostic instrument used to facilitate inspection of most body orifices by holding aside tissues, for example aural, nasal, ophthalmic, rectal and vaginal specula.
Scalpel	Surgical knife. Nowadays usually the blade is disposable.
Forceps	Instrument used for holding tissues. Many instruments diverse in design are called forceps.
Haemostat	Forceps designed to grip blood vessels and so stop bleeding.
Needle	Sharp pointed instrument of variable design. Solid needles used for suturing and hollow needles used for aspiration, biopsy, infusion, injection, etc.

<i>Term</i>	<i>Definition</i>
Needle holder	Instrument designed to hold needle during suturing.
Dissector	Blunt flat-ended instrument used to ease tissues apart during blunt dissection.
Retractor	Instrument to hold tissues apart after dissection to allow deeper tissues to be seen.
Curette	Instrument having a cup or loop shaped end, the edge of which is sharp to allow cutting or scraping of tissues.
Elevator	a) Instrument used to lift a depressed fragment of bone or other tissues. Often qualified by another term, for example periosteal elevator, rugine. b) Instrument used in dentistry during removal of teeth or retained roots.
Director	Instrument used to guide a second instrument, usually a scalpel.
Dilator	Solid instrument with tapered end introduced into an orifice or tube to dilate it.
Bougie	Rod-shaped instrument used for stretching urethra or other canal.
Obturator	Appliance or instrument to close or occupy a space, for example an implant to close a gap in the cranium; alternatively a blunt trocar-like temporary core to a tubular instrument to aid its introduction into an orifice.

2.8 Implants and Grafts

Surgical implant	Object which is surgically implanted in the body, either temporarily or permanently for diagnostic or therapeutic purposes.
Orthopaedic implants	Surgical implant which is used to aid in repair of bone or related tissues and to replace these tissues either temporarily or permanently. It may consist of several components.
Temporary implant	Implant which is intended to be removed after serving its purposes.

<i>Term</i>	<i>Definition</i>
Permanent implant	Implant which is intended to be left in the patient for the remaining of life.
Transcutaneous implant	Implant introduced into body through the skin often through cannula.
Transmucosal implant	Implant introduced into body through mucous membrane usually through cannula.
Prosthesis	(Plural prostheses, <i>Adj.</i> prosthetic) Any device which replaces anatomical part or deficiency. Regrettably prosthesis, has been used internationally in the restricted sense of denoting an artificial limb and the prosthetist has been used to describe an artificial limb fitter.
Orthoprosthesis	Prosthesis which replaces part of musculo-skeletal system.
Internal prosthesis or endoprosthesis	Permanent prosthesis used wholly within (for example as replacement of bone, joint, tendon or ligament).
External prosthesis or exoprostheses	Wholly external prosthesis (for example artificial teeth, artificial eye, contact lens, artificial limb, wig).
Orthosis	External device for a patient which supplements function impaired, for example by disease, injury or deficiency of prosthesis.
Orthotist	Person concerned in the measurement for and fitting of orthoses.
Transplant	(<i>Noun</i>) Organ or complete structure transferred from one part of body to another or from one individual to another (compare craft) (<i>Verb</i>) Act of such transfer.
Graft	(<i>Noun</i>) Transplanted piece of tissue, for example of skin or of bone (whether or not treated by freeze drying, deproteinization, etc), (compare transplant). (<i>Verb</i>) Act of grafting.

Term

Definition

Autograft AUTO-GENOUS GRAFT, AUTOLOGOUS GRAFT, AUTOPLASTIC GRAFT	Graft taken from source in an individual who receives it; that is donor and recipient the same person.
Homograft HO-MOGENOUS GRAFT, HOMOPLASTIC GRAFT	Graft taken from another individual of same species as recipient.
Heterograft HETEROLOGOUS GRAFT, HETEROGENOUS GRAFT, HETEROPLASTIC GRAFT	Graft taken from individual or another species.
Isogenetic homograft	Homograft with genetically similar donor and recipient, for example identical twins or animals from the same in-bred strain.
Allogenic homograft	Homograft with genetically dissimilar donor and recipient.
Orthotopic graft	In experimental work, replacement of graft at site from which it has been removed.
Heterotopic graft	Placing of autograft at site distinct from source, the usual procedure.

NOTE 1 — Terminology of grafting has become confused by etymologically contradictory and largely inessential jargon introduced in the laboratory.

NOTE 2 — The well established and universally used basic term — autograft, homograft and heterograft are commended — the distinction is between species.

NOTE 3 — The terms — isograft and allograft, refer to genetic identity or difference. Their etymology suggest erroneously that they are synonyms for autografts or homografts on the one hand and for heterografts on the other. In fact both are varieties of homograft. Where necessary, the word homograft can be qualified by the adjective isogenetic or allogenic.

NOTE 4 — The terms orthotopic and heterotopic referring to site or implantation of autografts are ambiguous, misleading and unnecessary.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>	<i>Definition</i>
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²